

CYPRESS

INTEGRATION SOLUTIONS

WMR-2000 SYSTEM

Wireless Mobile Reader

Operations Manual



System Overview

Cypress' Wireless Mobile Readers provide a unique portable credential verification solution. The WMR system includes a wiegand or serial panel interface for real-time verification. Common applications include Assembly Attendance, Random Challenge, Mustering and High volume Cardholder Traffic logging. Other common credentialing challenges can be easily solved with the WMR series of solutions. Designed for Transportation and Cargo Facilities, Petrochemical and Manufacturing Facilities, Healthcare and Educational Campuses.

Physical Specifications

Handheld Reader -8.25" x 5" x 2" - 1.5 lbs (with batteries - not included)
Base Unit - 6.75" x 3.75" x 2.00" - 1.0 lb

Environmental Specifications

- Temperature Range -40 to 85 C

Electrical Specifications

Central Unit

- Supply Voltage 8-16VDC
- Current 300mA

Handheld Unit

- 4 X AA Batteries Alkaline or NiMh (not included)

Smartcharger

- Smartcharger for NiMh batteries 120 VAC wall plug

Radio Specifications:

Frequency	2.4 GHz ISM band
Type	Direct Sequence Spread Spectrum
Transmit Power	15 dBm
Receive Sensitivity	-103 dBm
Security encryption	AES encryption upon request (export restrictions apply)

Card Technologies - Ordering Information

One Reader Configuration

Includes Base unit, holster, charger and lanyard

WMR-2120	Farpointe Prox - HID Prox (125 kHz)
WMR-2130	HID Multiclass - iClass and MiFare CSN (125 kHz and 13.56 MHz)
WMR-2160	HID SE - iClass and MiFare (13.56 MHz)

Two Reader Configuration

Includes Base unit with Wiegand port expander, (2) holsters, (2) chargers and (2) lanyards

WMR-2220	Farpointe Prox - HID Prox (125 kHz)
WMR-2230	HID Multiclass - iClass and MiFare CSN (125 kHz and 13.56 MHz)
WMR-2260	HID SE - iClass and MiFare (13.56 MHz)

*Other technologies available upon request

Typical wireless range:

- Internal - Up to 150 feet

- Outdoor - Up to 250 feet (Distances given are typical line of sight. Actual distance will vary depending upon terrain, RF environment, building materials, and height of antenna).

* Range may be expanded using RPT-565X repeaters.



WMR-7211 Base Unit



WMR-BATT-NiMH



Belt Holster
WMR-HOLB

Unpack Units



WMR-7XXX Mobile Unit



Smartcharger for NiMH
Batteries (not included)



RPT-5651
Optional Repeater



WMR-PRCX
Programming cards
(if required)



Wiegand Expansion
EXP-1000C

Remove cover from Central unit and check interior for any shipping damage.
Remove any packing material if present.

Before installing the units in the field they should be assembled and tested at a convenient "Bench top" location. This will make it easier to verify / change settings and check operation when both units are visible at the same time.

It is also a chance to become familiar with the system if this is the first time using the Suprex system. It is much more difficult to configure and test the units when they are several hundred feet apart.

The units as shipped are configured as a matched pair/set and are ready to plug in and operate.

The Central unit needs to have a suitable power supply installed.

System Description

The Wireless Mobile Reader is the newest member of the Suprex family of products.

The WMR products are based on the Suprex SPX-5600 series of products and they support a wide range of additional features:

Additional features:

- AES Encryption for secure communications upon request
- No channel selection is required as the units are preconfigured at the factory.
- Diagnostic indicator on Central unit for determining operational status of the unit
- Repeaters for challenging installations for additional distance and line-of sight

Initial setup and configuration.

The Wireless WMR system operates as a matched pair of units that share the same communication channel. Each pair is configured at the factory to operate without the need to set channels.

Each pair communicates using an intelligent addressing algorithm. This allows multiple pairs of units to operate in the same environment without interfering with each other.

Up to 8 units can operate in the same area without factory modifications

Unit channel selection is made at the factory and no field settings are necessary.

Initial Setup:

This manual will cover the basic installation procedure for a typical Suprex WMR system.

The first step will be to configure and test the units at a bench top location where both the Central and Remote units are close together. This will allow the setup and configuration process to occur with both sides of the operation in view.

Setup is modified minimally when using EXP-1000 units. Please make note.

See the Address programming Addendum when using multiple Handheld Readers with EXP-1000 wiegand expansion units



Credential Read Area

Communication
Status LED
BLUE

Card
Verification LED
GREEN

Lanyard Post

Power LED
and Card
Acknowledge
RED

Power Button



Charging Port
with weatherproof cover

Case Colors

Grip Colors



Operation:

The Handheld Remote reader unit will read a Wiegand RF proximity badges. The badge data is sent through a radio link to a Central panel interface module that generates Wiegand data for a connected access control panel.

An access control panel determines whether the badge is valid or invalid. When valid badge data is presented, the panel will trigger either an LED, Strike Relay output, or both, depending upon the type of panel. Any low (Ground) connection on the Central LED input will change the state of the Remote status LED from Red to Green. The Central unit LED input is connected to the panel output and the status of this panel output is what is displayed by the Remote status LED. The panel also determines the amount of time the LED remains Green for valid badges.

A Central unit diagnostic LED will alternate Red and Green when the units are not communicating. This may happen when the Central unit powers up without the Remote unit having power. Once both units are powered up, the Central Unit diagnostic LED should enter a flashing green on and off mode. This should occur within 30 seconds of both units having power applied.

The Remote unit Communication LED should also be flashing rapidly when the units are communicating.

User operation:

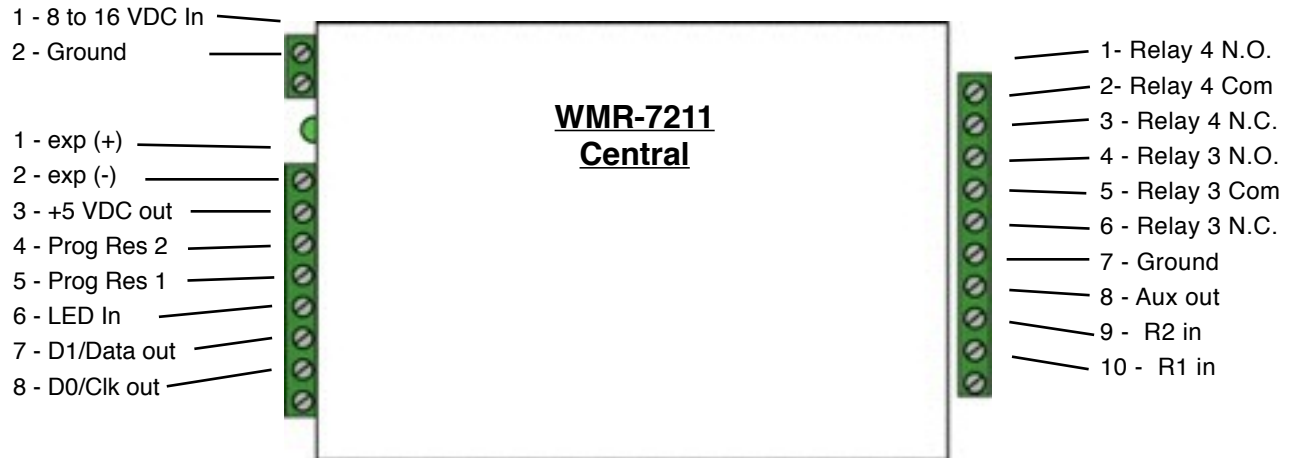
When successfully linked to the WMR-7211 base unit, The WMR handheld unit should have the communication LED flashing **BLUE** 3 times per second, and the Power LED (**RED**) during idle operation.

When a badge is presented the WMR handheld unit will beep to indicate that the badge was read (sensed). Additionally the Power LED will flash off (**RED**).

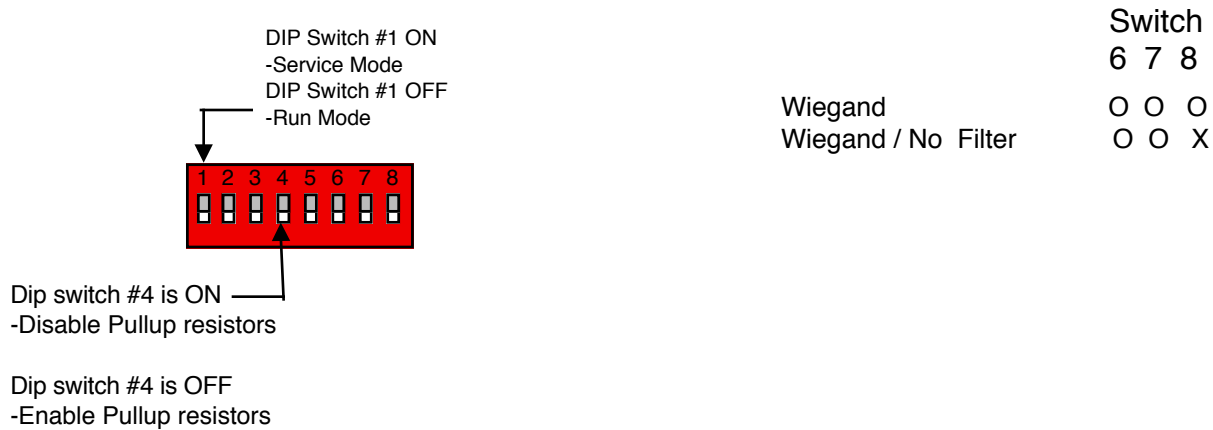
The Status LED will remain **Red** for invalid badges, and will change to **Green** for valid badges and valid badge verification includes a vibrate feature.

After an amount of time determined by the panel, the Status LED will return to a **Red** state.

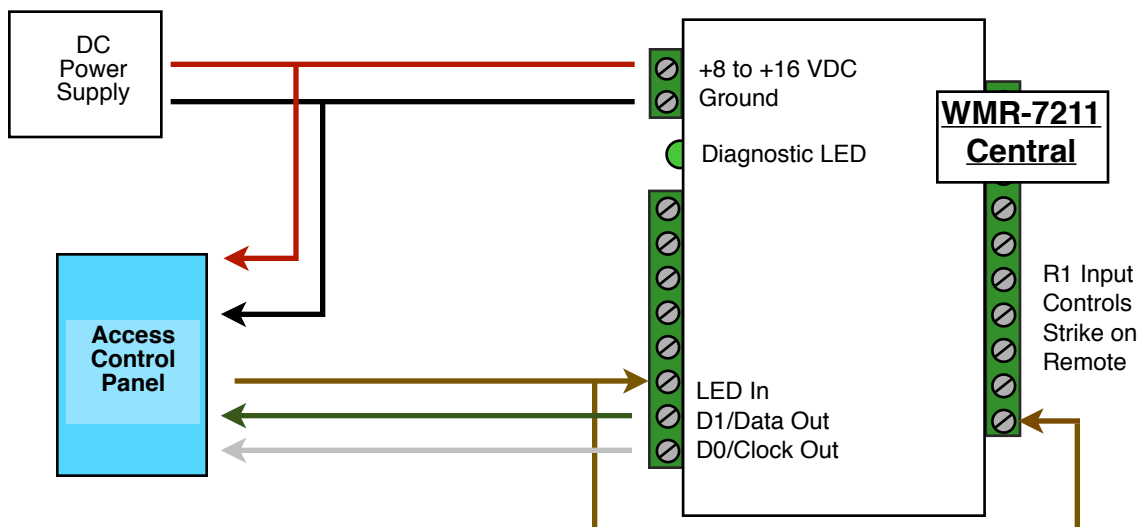
External connections and DIP Switch Settings



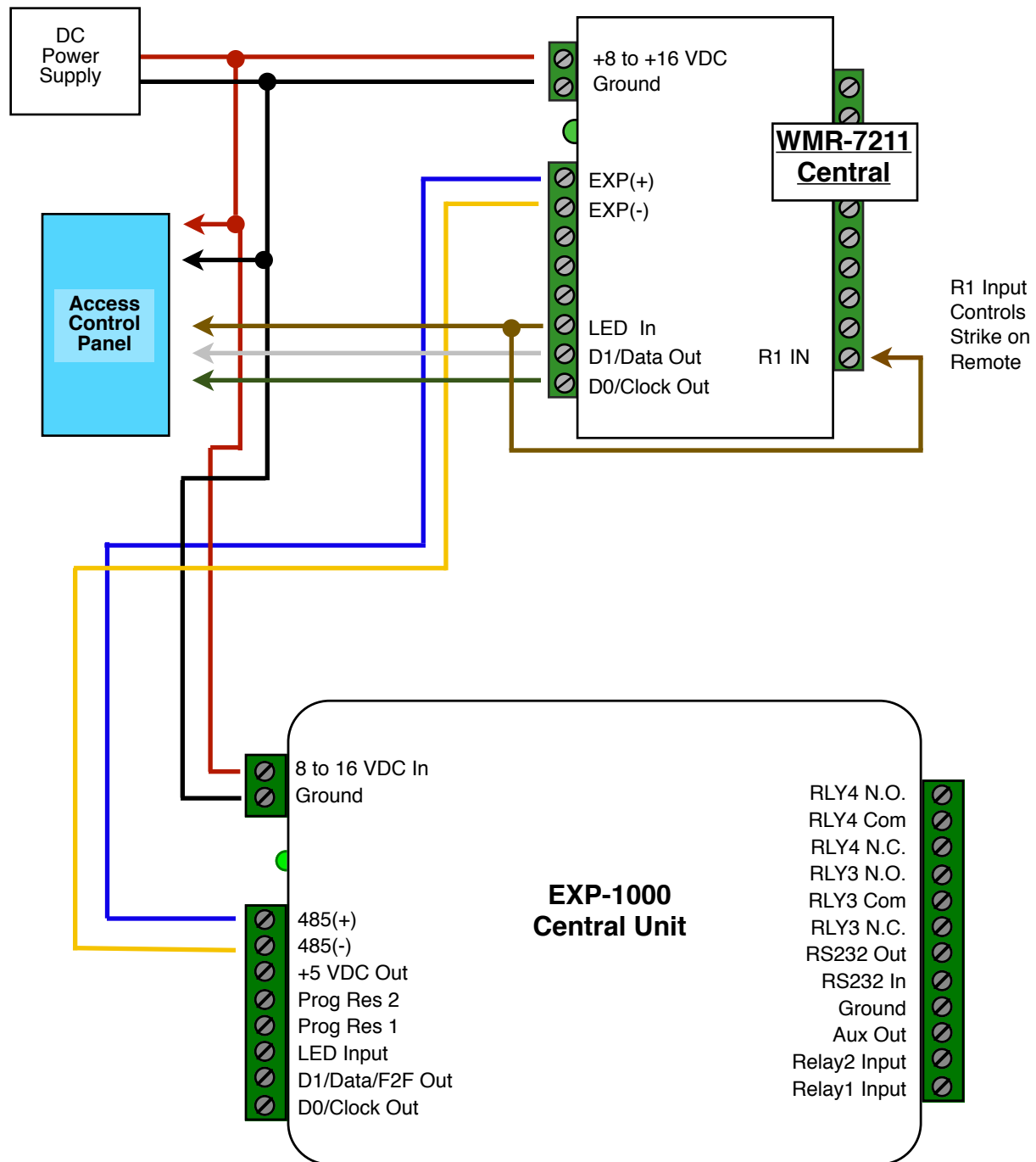
Central Unit Settings



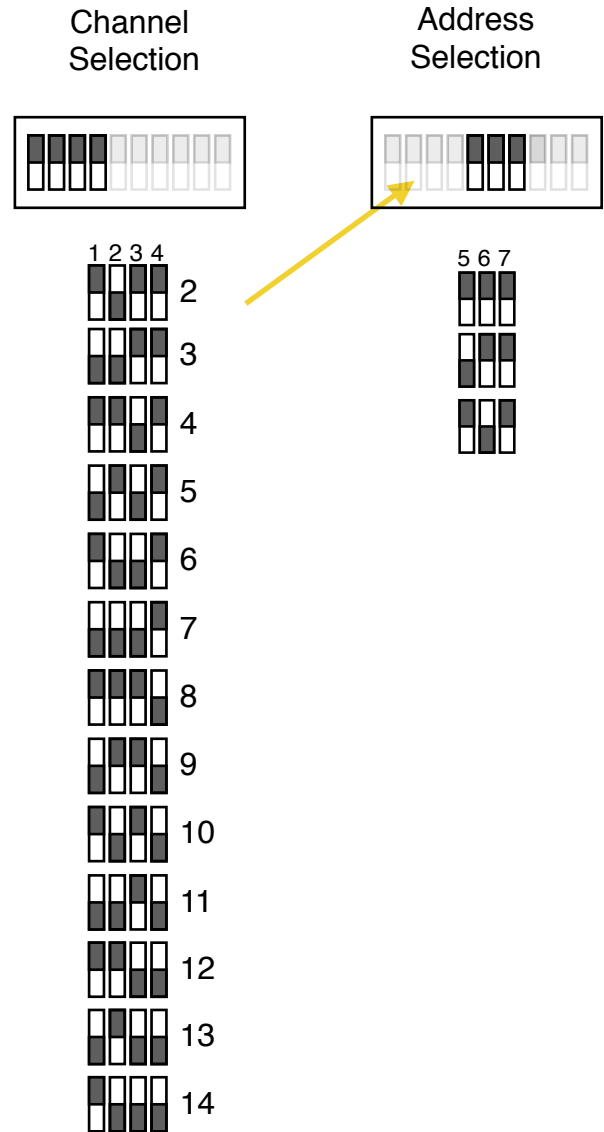
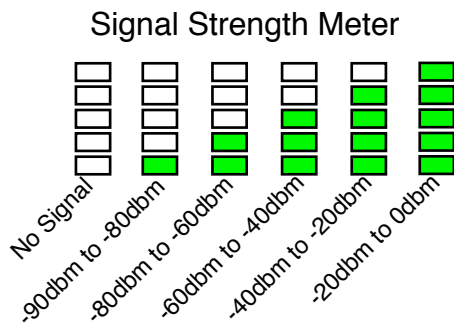
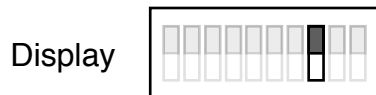
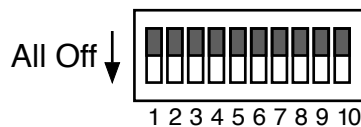
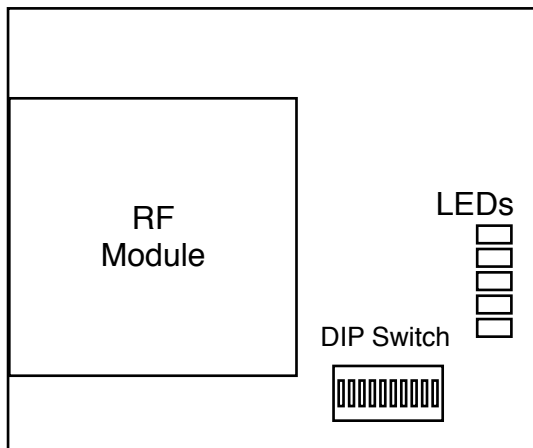
WMR-7211 Central Quick Reference



Cypress WMR-2000 - Wiegand Expansion Module Panel "Central" interface



WMR-7211 Central Unit Diagnostics and programming



WMR-7211 and EXP-1000 Cable Recommendations

RS-485 connection (WMR-7211 to EXP-1000)

PVC - Belden 9744 - 22 AWG 2 twisted pair, 4,000 feet max.

Plenum - Belden 82741 - 22 AWG 2 twisted pair, 4,000 feet max.

Wiegand and LED

PVC - Belden 9873 - 20 AWG 3 pair shielded, 500 feet max.

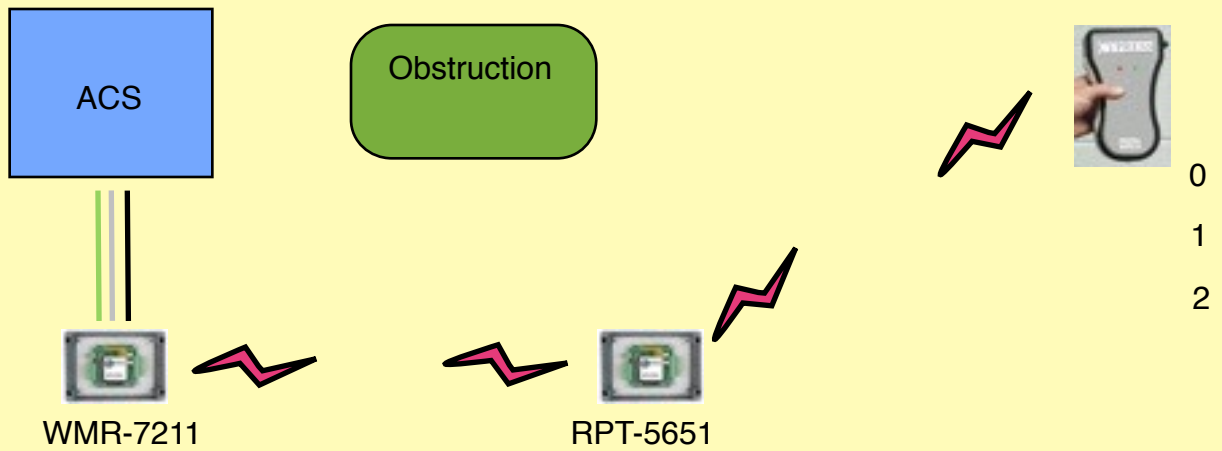
Plenum - Belden 83606 or 85164 - 20 AWG 3 pair shielded, 500 feet max.

Power (local)

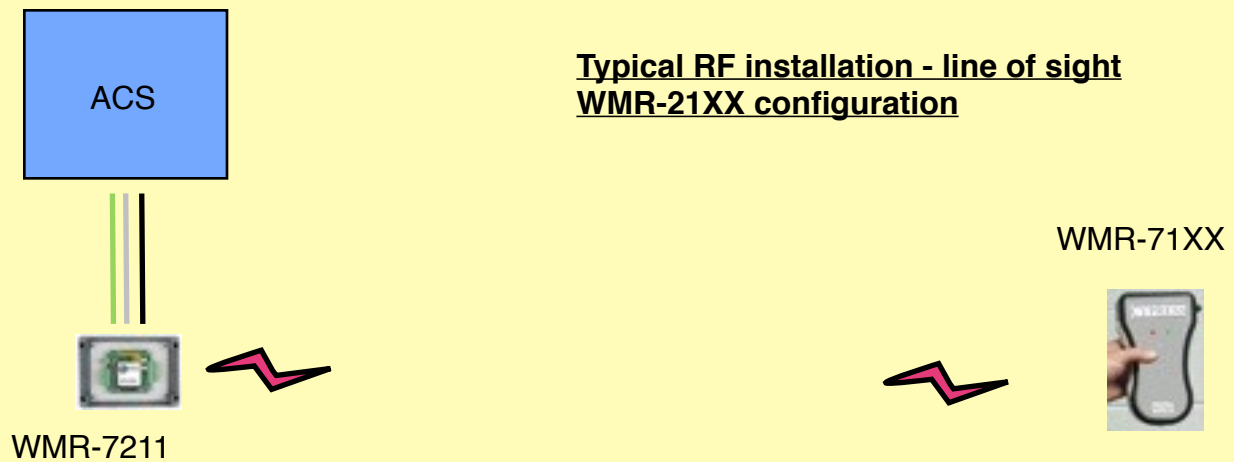
PVC - Belden 8461 - 18 AWG 1 pair, 25 feet max.

Plenum - Belden 82740 - 18 AWG 1 pair, 25 feet max.

Typical RF installation with repeater

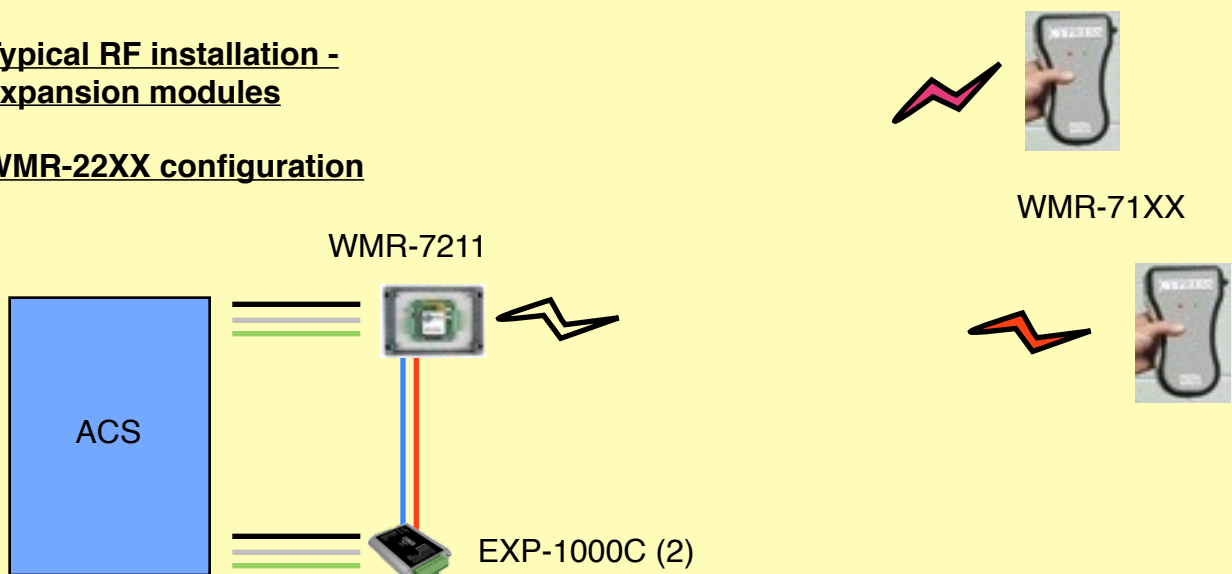


Typical RF installation - line of sight WMR-21XX configuration



Typical RF installation - expansion modules

WMR-22XX configuration



CYPRESS

INTEGRATION SOLUTIONS

WMR-2000 Series

Product Specifications

Wireless Mobile Reader Kit



Physical Specifications

Handheld Reader -8.25" x 5" x 2" - 1.5 lbs (with batteries - not included)
Base Unit - 6.75" x 3.75" x 2.00" - 1.0 lb

Environmental Specifications

- Temperature Range -20 to 50 C

Electrical Specifications

Central Unit

- Supply Voltage 8-16VDC
- Current 300mA

Handheld Unit

- 4 X AA Batteries Alkaline or NiMh (12 hours with (4) 2600 mAh)

Smartcharger

- Smartcharger for NiMh batteries 120 VAC wall plug

Radio Specifications:

Frequency	2.4 GHz ISM band
Type	Direct Sequence Spread Spectrum
Transmit Power	15 dBm
Receive Sensitivity	-103 dBm

Security encryption:

- Wireless communications AES encryption upon request (**export restrictions apply**)

Card Technologies - Ordering Information

One Reader Configuration

WMR-2120	Farpointe Prox - HID Prox (125 kHz)
WMR-2130	HID Multiclass - iClass and MiFare CSN (125 kHz and 13.56 MHz)
WMR-2160	HID SE - iClass and MiFare (13.56 MHz)

Two Reader Configuration

WMR-2220	Farpointe Prox - HID Prox (125 kHz)
WMR-2230	HID Multiclass - iClass and MiFare CSN (125 kHz and 13.56 MHz)
WMR-2260	HID SE - iClass and MiFare (13.56 MHz)

*Other technologies available upon request

Typical wireless range:

- Internal - Up to 150 feet

- Outdoor - Up to 250 feet (Distances given are typical line of sight. Actual distance will vary depending upon terrain, RF environment, building materials, and height of antenna).

* Range may be expanded using RPT-565X repeaters.

ADDRESS PROGRAMMING ADDENDUM

The handheld units are shipped preconfigured for use with their respective Central Units. One Handheld is designated as "Out Bound" and has the polling address of 0 (zero). Another is labelled as "Inbound" with address 1. And the third handheld is set up as a spare unit with a polling address of 2 (not in the central unit's polling sequence).

At any time, the spare can be easily re-configured to take over for the In or Out handheld device by using special programming cards (included with your units). All units will recognize the 3 programming cards (they are not restricted to a particular set or group of handhelds).

The programming cards (PART NUMBER WMR-PRCD) are labeled Address 0, 1, and 2.

Change the spare unit to take over for the outbound handheld reader:

1. Turn the spare handheld on by pressing the power button momentarily
2. Observe the Red Led is on solid.
3. Present the Programming Card labelled Address 0
4. Observe the Red Led wink for 1/2 second indicating the card was read (there is also an audible beep)
5. The Blue Led should start blinking every second indicating that it is communicating with the Central Unit
6. The Handheld is now ready to be used as the OutBound Handheld Reader

Change the spare unit to take over for the inbound handheld reader:

1. Turn the spare handheld on by pressing the power button momentarily
2. Observe the Red Led is on solid.
3. Present the Programming Card labelled Address 1
4. Observe the Red Led wink for 1/2 second indicating the card was read (there is also an audible beep)
5. The Blue Led should start blinking every second indicating that it is communicating with the Central Unit
6. The Handheld is now ready to be used as the InBound Handheld Reader

Take a handheld out of service:

1. Turn the spare handheld on by pressing the power button momentarily
2. Observe the Red Led is on solid. If not, the batteries may need to be replaced or charged.
3. Present the Programming Card labelled Address 2
4. Observe the Red Led wink for 1/2 second indicating the card was read (there is also an audible beep)
5. The Blue Led should stop blinking and remain solid (or stay off) indicating it is no longer in contact with the Central Unit
6. The Handheld is no longer being polled by the central and will not interfere with normal use of the other 2 units

For all steps indicated above, the following error conditions may occur.

Step 2 - If the Red LED does not illuminate, the batteries may need to be replaced or charged.

Step 4 - If you do not see the Red LED wink out for 1/2 second, present the badge again.

- If the Red LED still does not indicate a badge read has occurred, then there may be a problem with the reader.

- When trying multiple times, make sure the badge is well away (greater than 1 foot) from the handheld before presenting the badge again.

- Allow the unit to power off (1 minute) and try again.

Step 5 - If the Blue LED does not start blinking within 10 seconds after presenting the In or Out programming card, make sure the Central Unit is powered on and is within communication range. After presenting the "Out of Service" card (Address 2), the Blue LED should stop blinking within 10 seconds. If it continues to blink, the Central Unit may not be configured properly.

WMR Channel Programming (future)

The New WMR handheld units will provide for field selection of Channel (2 - 14) and Network address (0 - 3) using programming cards.

Address program cards will be used for programming IN and OUT readers.

Sample Channel card



Sample Address cards



Additionally the New WMR base units will offer field programming using dip switches. Signal strength metering will also be available to assist with hardware placement during installation.

See additional documentation.

Routine Maintenance and Trouble Shooting